

What is claimed is:

1 1. A broadband slot array antenna comprising:
2 a common input terminal;
3 a conductor plate having a common slot formed in a predetermined area and
4 a plurality of slot halves being formed separately and respectively communicating
5 with the common slot via a plurality of slot necks spaced by a predetermined
6 distance;
7 a plurality of feed lines, each having one terminus connected to the common
8 input terminal, for applying power to the conductor plate at a cross coupling point;
9 and
10 a dielectric layer disposed between the conductor plate and the plurality of
11 feed lines.

1 2. The broadband slot array antenna of claim 1, wherein, when power is
2 applied to the conductor plate, the slot halves respectively produce a plurality of
3 electromagnetic fields having coinciding phases.

1 3. The broadband slot array antenna of claim 1, wherein the
2 predetermined distance is less than $\lambda/2$.

1 4. The broadband slot array antenna of claim 1, wherein the plurality of
2 feed lines each have a predetermined length from the common input terminal to the
3 cross coupling point.

1 5. The broadband slot array antenna of claim 4, wherein the
2 predetermined length is $\lambda/4$.

1 6. The broadband slot array antenna of claim 5, wherein the cross
2 coupling is achieved by a conductive connection between the feed lines and the
3 conductor plate.

1 7. The broadband slot array antenna of claim 5 wherein the cross
2 coupling is achieved by a capacitive coupling between the feed lines and the
3 conductor plate.

1 8. The broadband slot array antenna of claim 1, wherein each feed line
2 traverses one of the plurality of slot halves.

1 9. The broadband slot array antenna of claim 8, wherein the feed lines
2 traverse the slot necks from one direction.

1 10. The broadband slot array antenna of claim 8, wherein the feed lines
2 traverse the slot necks from opposing directions.

1 11. The broadband slot array antenna of claim 1, wherein the conductor
2 plate is grounded.

1 12. The broadband slot array antenna of claim 1, wherein the common
2 slot and the plurality of slot halves exhibit one of a bowtie configuration, a dog-bone
3 configuration, and a paddle-bowtie configuration.

1 13. The broadband slot array antenna of claim 1, wherein each feed line
2 is one selected from the group consisting of a microstrip, coaxial line, coplanar
3 waveguide, and slot line.

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